The geoscience community provides the knowledge, experience and ingenuity to meet society’s demands for natural resources, environmental quality and resilience from hazards. Here we outline the critical needs of the nation and the world at the outset of the twenty first century and provide policy guidance to grow the economy while sustaining the Earth system.

The Earth system includes complex linkages between the atmosphere, hydrosphere, biosphere and lithosphere. Natural resources we rely on are derived from the Earth system and include the following broad categories:

- Energy resources
- Water resources
- Soil resources
- Mineral, metal and building material resources
- Ecological resources, such as forests, wetlands, coastal systems and the oceans

With a burgeoning human population, rising demand for natural resources and a changing climate, it is critical to more fully integrate Earth observations and Earth system understanding into actions for a sustainable world. The geoscience community of more than 120,000 geoscientists represented by the 44 member societies of the American Geological Institute stands ready to help deal with the challenges of modern life in a delicately linked Earth system.

**Critical Needs**

1. **Energy and Climate Change**: How do we secure stable energy supplies in an increasingly carbon-constrained world?
2. **Water**: Will there be enough fresh water and where will it come from?
3. **Waste Treatment and Disposal**: How will we reduce and handle waste and provide a healthy environment for all?
4. **Natural Hazards**: How will we mitigate risk and provide a safer environment?
5. **Infrastructure Modernization**: How will we develop and integrate new technology and modernize aging infrastructure?
6. **Raw Materials**: How will we ensure reliable supplies when they are needed and where will they come from?
7. **Geoscience Workforce and Education**: Who will do the work to understand Earth processes and meet demands for resources and resiliency? Who will educate the public and train the workforce?
Key Recommendations

• Establish a Natural Resource Advisor within the White House Office of Science and Technology Policy to advise the President on stewardship of natural resources based on scientific understanding and technological advances. The advisor will highlight connections between the different resources; improve integration between research, development, technology and demand of all resources; and advise the government on policy, management and risk reduction – all in a global context.

• Invest in mapping, monitoring, assessments and state and federal surveys of natural resources. Ensure that data are integrated to provide the context for understanding climate change, supply and demand scenarios on global to local scales and risks from hazards.

• Invest in research and development to understand Earth processes because sustainable consumption and conservation of resources, enhancement of environmental quality and resilience from risk depend on living with our dynamic planet.